



BANNER®
the photoelectric specialist

WORLD-BEAM™
Photoelectric Sensors



WORLD-BEAM™: The new standard in high-performance photoelectrics.

Replace hundreds of sensors with one universal photoelectric family.



WORLD-BEAM™ sets a new standard with an innovative, universal housing design that fits in almost any mounting situation. With WORLD-BEAM, you can replace most existing sensors, meet or exceed their performance, and take up less space. With an 18 mm threaded nose, it directly replaces 18 mm barrel sensors. And with its standard mounting hole configuration, it easily replaces non-threaded rectangular sensors.

Sensing modes & ranges that solve most applications.

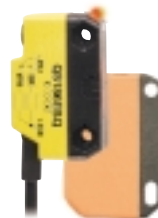
WORLD-BEAM sensors are available in six sensing modes for applications in all industries, providing accurate and reliable sensing at ranges up to 20 m (67'):

- Opposed (through beam)
- Retroreflective and polarized retroreflective
- Convergent beam
- Regular or wide-angle diffuse (proximity mode)

One housing style fulfills all mounting requirements.



Directly replace barrel sensors and eliminate significant required depth.



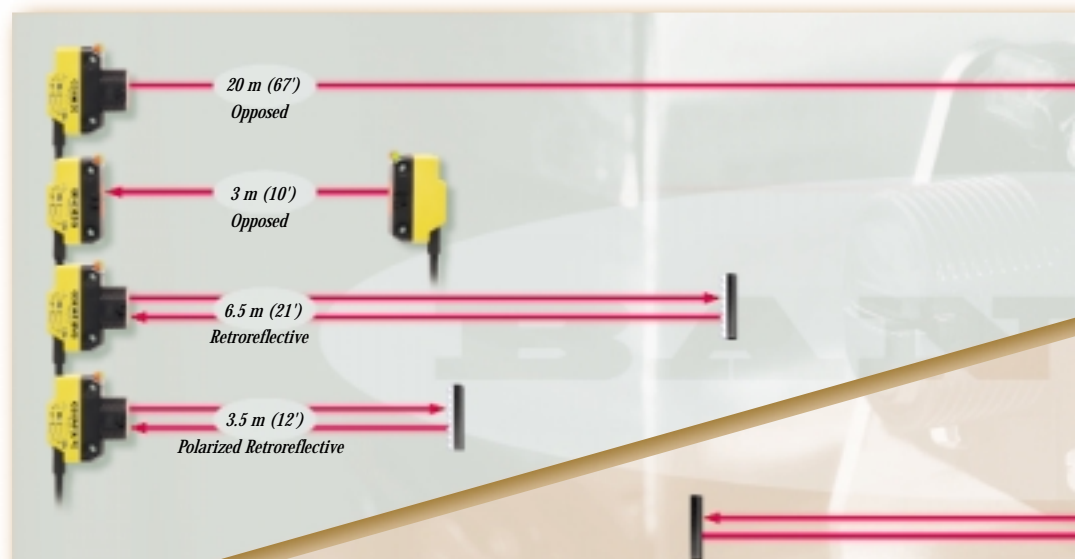
Using identical mounting holes, replace straight and right-angle sensors, and get increased performance.



Replace larger "mini-style" sensors without sacrificing performance.



Replace low-end economy sensors while increasing performance.





Small size, yet excellent range & performance.

The perfect fit for your applications.

The unique design of the WORLD-BEAM™ makes it the most versatile and universal photoelectric sensor available. You can replace almost any photoelectric sensor in your application and get equal or better performance.

Narrow, 21.1 mm to 33.2 mm (0.82" to 1.31") depth (depending on model) fits your applications better and takes up less space.

18 mm threaded nose allows direct replacement of 18 mm barrel sensors.

High optical-quality acrylic lens resists harsh environments.

Ranges exceed those of sensors several times larger:

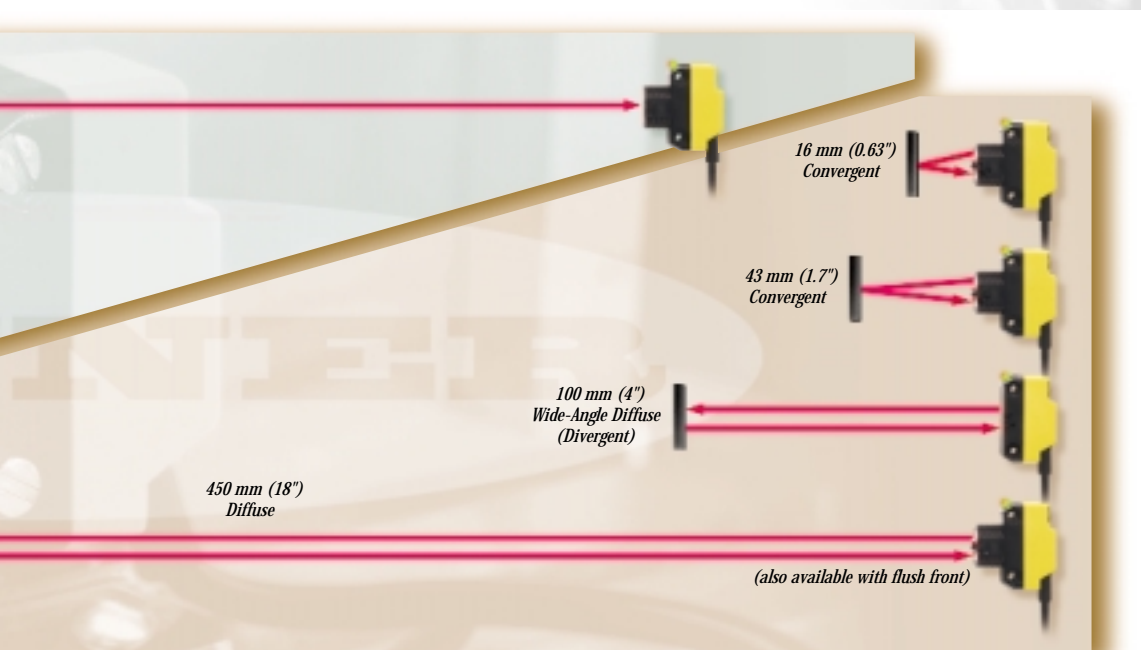
- *Opposed mode: 20 m (67') or 3 m (10') range*
- *Retroreflective mode: 6.5 m (21') or 3.5 m (12') polarized range*
- *Convergent models: 16 mm (0.63") or 43 mm (1.7") focus*
- *Diffuse (proximity) mode: 100 mm (4") or 450 mm (18")*

ABS polycarbonate housing, rated IEC IP67 and NEMA 6.

Standard 3 mm (0.12") mounting holes are spaced at 24 mm (0.95") for direct replacement of older sensors.

Connect with integral, 2 or 9 m (6.5' or 30') prewired cable or 150 mm (6") four-pin Pico-style pigtail connector.

Flexible strain-relief cable design allows multiple mounting positions.





WORLD-BEAM™: Superior features for maximum performance.

Easier alignment with powerful, visible-red sensing beam.

The WORLD-BEAM™ sensor features a powerful, visible-red sensing beam on convergent and retroreflective models that saves time during installation. The sensor forms a bright red visible spot on the retroreflector or target product. Simply point the sensor at the target or retroreflector and center the spot for quick, easy alignment. This precise alignment ensures more dependable sensor performance.

Advanced, patented diagnostics keep you better informed.

Green and red LED indicators on the sensor provide constant operating status information at a glance. The steady green LED indicates POWER ON, and flashes to indicate output overload. The steady red LED indicates normally-open output conducting, and flashes to indicate marginal sensing conditions (low excess gain of 1 to 1.5x) in light condition.

Dependable, sealed sensitivity adjustment.

Innovative sensitivity adjustment on convergent, retroreflective and diffuse models can be easily changed with a finger or screwdriver for accurate, dependable settings. It features a mechanical molded stop to prevent over-adjustment damage. Internal potentiometer is totally isolated from the environment, and sealed.

Rugged acrylic lens.

High optical-quality acrylic lens eliminates breakable glass and provides precise sensing. Its impact-resistant construction meets requirements for use in a wide variety of industries, including applications with proximity to food and pharmaceutical products. Lens design accepts snap-on apertures to change sensing characteristics.

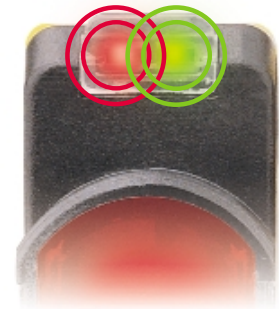


GREEN:
DC power on

RED:
N.O. output conducting

GREEN FLASHING:
Output overload.

RED FLASHING:
Marginal excess gain
(1-1.5x)



360° visible LEDs.

LEDs protrude above the top of the sensor, giving you visibility from the top and all sides. You'll always know the operating status of the WORLD-BEAM, from any angle of view.



Increase sensing productivity in low & high-volume applications.

Banner can meet any volume requirement, worldwide.

With six strategically located manufacturing plants, Banner is the largest volume producer. Automation is the backbone of our world-class manufacturing capabilities. We use surface-mount components and extremely fast pick-and-place technology to populate boards at speeds of nearly 45,000 components per hour. This is only one way Banner ensures manufacturing capacity to meet market demands and handle any size order. Most products can ship within hours of your order.

Versatile 100 mA outputs.

WORLD-BEAM™ sensors feature versatile output configurations. Users can choose complementary NPN (sinking) or PNP (sourcing) outputs, one normally open and one normally closed, each capable of switching up to a 100 mA load.



Protected circuitry.

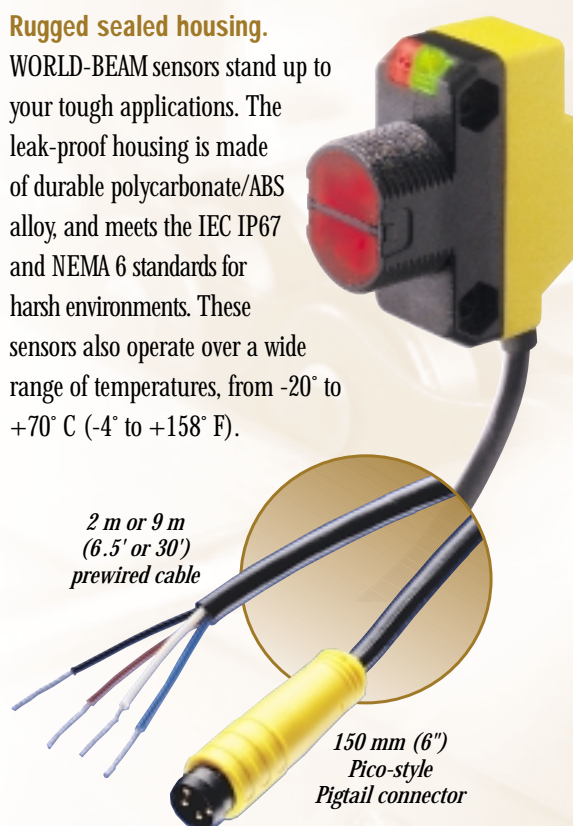
The WORLD-BEAM sensor is designed to withstand electrical problems or installation error. Integral protective circuitry guards the sensor against reverse polarity and transient voltages, short circuits and false pulse on power up.

Rugged sealed housing.

WORLD-BEAM sensors stand up to your tough applications. The leak-proof housing is made of durable polycarbonate/ABS alloy, and meets the IEC IP67 and NEMA 6 standards for harsh environments. These sensors also operate over a wide range of temperatures, from -20° to +70° C (-4° to +158° F).

Prewired or pigtail connector wiring, 10 to 30V dc.

We have the wiring choices you need. The WORLD-BEAM comes in models with an integral, 2 or 9 m (6' or 30') prewired cable or 150 mm (6") Pico-style pigtail connection, for plug-and-play convenience and interchangeability.



WORLD-BEAM™: Model Selection & Accessories

Models with pre-wired cable Models with Pico-style pigtail quick-disconnect

Model Number	Part Number	Sensing Mode	Range	Cable	Supply Voltage	Output Type	Output Rating	Response	Repeatability
QS186E	61618	Opposed Emitter	20 m (67')	2 m (6.5')	10 to 30V dc	—	100 mA maximum	—	—
QS186EQ	61619			4-pin Pico QD					
QS18VN6R	61621	Opposed Receiver		2 m (6.5')		NPN		750 µs ON and 350 µs OFF	100 µs
QS18VN6RQ	61622			4-pin Pico QD					
QS18VP6R	61624			2 m (6.5')		PNP			
QS18VP6RQ	61625			4-pin Pico QD					
QS186EB	61675	Opposed Emitter (Flush Front)	3 m (10')	2 m (6.5')		—		—	—
QS186EBQ	61676			4-pin Pico QD					
QS18VN6RB	61669	Opposed Receiver (Flush Front)		2 m (6.5')		NPN		750 µs ON and 350 µs OFF	100 µs
QS18VN6RBQ	61670			4-pin Pico QD					
QS18VP6RB	61672			2 m (6.5')		PNP			
QS18VP6RBQ	61673			4-pin Pico QD					
QS18VN6LP	61627	Polarized Retroreflective	3.5 m* (12')	2 m (6.5')		NPN		600 µs ON and OFF	150 µs
QS18VN6LPQ	61628			4-pin Pico QD					
QS18VP6LP	61630			2 m (6.5')		PNP			
QS18VP6LPQ	61631			4-pin Pico QD					
QS18VN6LV	61633	Retroreflective	6.5 m* (21')	2 m (6.5')		NPN			
QS18VN6LVQ	61634			4-pin Pico QD					
QS18VP6LV	61636			2 m (6.5')		PNP			
QS18VP6LVQ	61637			4-pin Pico QD					
QS18VN6CV15	61639	Convergent 16 mm	16 mm (0.63")	2 m (6.5')		NPN			
QS18VN6CV15Q	61640			4-pin Pico QD					
QS18VP6CV15	61642			2 m (6.5')		PNP			
QS18VP6CV15Q	61643			4-pin Pico QD					
QS18VN6CV45	61645	Convergent 43 mm	43 mm (1.7")	2 m (6.5')		NPN			
QS18VN6CV45Q	61646			4-pin Pico QD					
QS18VP6CV45	61648			2 m (6.5')		PNP			
QS18VP6CV45Q	61649			4-pin Pico QD					
QS18VN6D	61651	Diffuse	450 mm (18")	2 m (6.5')		NPN			
QS18VN6DQ	61652			4-pin Pico QD					
QS18VP6D	61654			2 m (6.5')		PNP			
QS18VP6DQ	61655			4-pin Pico QD					
QS18VN6DB	61663	Diffuse (Flush Front)	450 mm (18")	2 m (6.5')		NPN			
QS18VN6DBQ	61664			4-pin Pico QD					
QS18VP6DB	61666			2 m (6.5')		PNP			
QS18VP6DBQ	61667			4-pin Pico QD					
QS18VN6W	61657	Wide Angle Diffuse (Flush Front)	100 mm (4")	2 m (6.5')		NPN			
QS18VN6WQ	61658			4-pin Pico QD					
QS18VP6W	61660			2 m (6.5')		PNP			
QS18VP6WQ	61661			4-pin Pico QD					

* Based on BRT-84 retroreflector. NOTE: All cabled models also available with attached 9 m (30') cable (add W/30 to model number).

A complete selection of brackets offers flexible, esthetic mounting options.

Having the right mounting options readily available will assure optimum performance and quick installation of your Banner sensors. These attractively designed stainless steel and reinforced thermoplastic polyester units also enhance the appearance of your equipment and save you time and money through reduced installation time and lower total installed cost. Choose angled, through-hole brackets; split-clamp models that mount to a flat surface; versatile swivel-mount models that mount flat and have an adjustable ball to position the sensor at any angle; and many more. Request the Banner Sensor Catalog (P/N 99000) or CD ROM (P/N 99100) for available models. *Custom brackets* can also be designed for your unique applications.





WORLD-BEAM™ Specifications, Dimensions & Accessories

Specifications: WORLD-BEAM™ Sensors

Supply Voltage: 10 to 30V dc (10% maximum ripple) at less than 25 mA, exclusive of load.

Supply Protection Circuitry: Protected against reverse polarity and transient voltages.

Output Configuration: Solid-state complementary (SPDT): NPN or PNP (current sinking or sourcing) output, depending on model.

Output Rating: 100 mA maximum, each output at 25° C. OFF-state leakage current: less than 50 µA @ 30V dc. ON-state saturation voltage: less than 1 V @ 10 mA; less than 1.5 V @ 100 mA.

Output Protection Circuitry: Protected against false pulse on power-up and continuous overload or short circuit of outputs.

Output Response: Opposed Mode: 750 µs ON, 350 µs OFF. All others, 600 µs ON and OFF. NOTE: 100 millisecond delay on power-up, outputs do not conduct during this time.

Repeatability: Opposed mode: 100 µs. All others 150 µs.

Adjustments: Convergent, retroreflective and diffuse models (only): Single-turn sensitivity (GAIN) adjustment potentiometer.

Indicators: 2 LEDs, visible from all sides of sensor; 1 green and 1 red.

Construction: Polycarbonate/ABS alloy housing.

Environmental Ratings: IEC IP67 and NEMA 6

Connections: 2 m (6.5') 4-wire PVC cable, 9 m (30') PVC cable, or 4-pin Pico-style 150 mm (6") pigtail QD, depending on model.

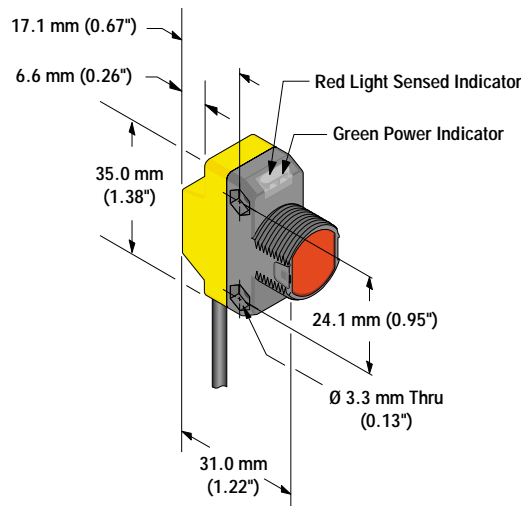
Operating Conditions: Temperature: -20°C to +70°C (-4°F to 158°F). Relative humidity: 90% @ 50°C (non-condensing).



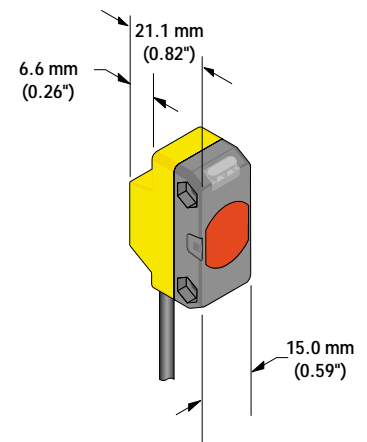
Optical-quality retroreflectors.

Choose from a complete line of high-quality acrylic targets, high-temperature targets and adhesive-backed retro tapes (not shown). Numerous sizes, shapes and mounting options meet your application requirements. Standard reflectivity model BRT-3 is used to conservatively rate the range of Banner retroreflective sensors, however, new high-reflectivity models dramatically increase the sensing ranges with reflectivity factors up to 3. Maximum temperature ratings range from 50°C (120°F) up to 480°C (900°). Various mounting options are available. Request the Banner Sensor Catalog (P/N 99000) or CD ROM (P/N 99100) for available models.

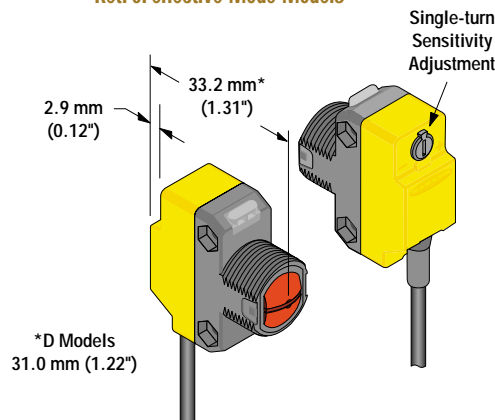
Opposed Emitter, Receiver & Polarized Retroreflective Mode Models



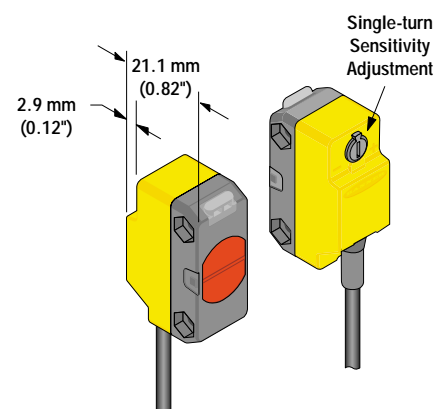
Flush Front Opposed Mode Emitter & Receiver Models



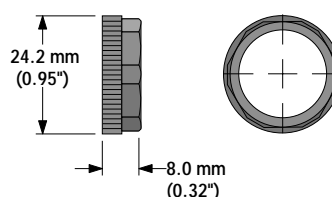
Diffuse, Convergent & Retroreflective Mode Models



Flush Front Diffuse Mode Models



M18 x 1 Jam Nut





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When you buy your sensors and machine safety products from Banner, you gain the confidence of dealing with the largest, most knowledgeable and experienced sensor company. We have the broadest line of products and the most advanced manufacturing capabilities in the industry. We can handle any size order, large or small, utilizing the most advanced manufacturing capabilities. We can deliver any of more than 15,000 different products in just three days—most can ship within hours!

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The Banner Photoelectric Sensors Catalog

The industry's most complete catalog; more than 700 pages of detailed product and technical information on more than 12,000 photoelectric sensors.



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P/N 63907